THE EFFECT OF IMIDAZOLINONE AND TRIBENUROM-METHYL TOLERANT SUNFLOWER TECHNOLOGY ON WEED CONTROL EFFICENCY AND SOIL QUALITY

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Abstract

During the period 2012-2013 in Mostistea Plain, Fundulea, South-Est of Romania on experimental conditions, under non irrigated conditions on cambic chernozem soil was carried out a field experiment with sunflower (*Helianthus annuus*). The paper presents the results concerning the weed control efficency of the imidazolinone and tribenurom-methyl tolerant sunflower technology and their effect on soil quality. Treatments with herbicides imazamox and tribenuron-methyl were applied to sunflower using technologies and specific resistant hybrids. Beside herbicide Express® 50 SG (sulfonylureas chemical group) was used the herbicide Frontier Forte (dimethenamid-P) and Stratos Ultra® (cicloxidim). In the year 2013 the degree of weed infestation was higher due to heavy rainfall, but we got a good weed control with the cultivation of IMI and SU sunflowers in both years. Enzyme activity from soil expressed as catalase activity was similar to untreated control for sunflower treated pre-emerget with Frontier Forte®. Treatments applied postemergence (Imazamox, Trimenuron-methyl) had either positive or values comparable to untreated control.
It showed an increase of cellulolytic activity after two month from herbicide treatments, suggesting an improvement in soil biological conditions. The herbicides Frontier Forte® (pre-emergence) and Pulsar® 40 at post-emergence application did not affect soil respiration, which suggests that these herbicides did not affect life from the soil. The fact that in the case of pre-emergent herbicide Frontier Forte®, soil respiration is relatively low compared to the untreated control suggests that microbial degradation was dificient at the moment. In respect of the nitrogen fixed nonsimbiotic our results shown that after 10 days and one month of treatments application, the values were comparable to the control, suggesting that the insignificant difference between the mean values of atmospheric dinitrogen fixed-free (nonsimbiotic) can be interpreted as lack of influence of herbicide treatment.

Key words: